IN THE CLAIMS

1. – 14. (canceled)

15. (currently amended) A method for processing radar return data in order to reject returns from a negative doppler shift swath to mitigate corruption of returns from a positive doppler shift swath, the radar receiving returns at each of a right channel, a left channel, and an ambiguous channel, said method comprising:

sampling the radar data from each of the channels;

converting the radar data samples into in-phase and quadrature components;

separately filtering the in-phase and quadrature components of the radar data samples;

converting the filtered in-phase and quadrature components of the radar data samples to doppler frequency signals~~, including in-phase and quadrature components of the returned swaths,~~ using cascaded second order infinite impulse response filters;

separately filtering the in-phase and quadrature doppler frequency signals with ~~a band pass filter, the filter~~ band pass filters centered at the doppler frequency;

subtracting the quadrature components of the filtered doppler frequency signals from in-phase components of the filtered doppler frequency signals; and

determining phase relationships between the right, left, and ambiguous channels using the filtered in-phase and quadrature doppler frequency ~~signals~~ signal components, the quadrature components subtracted from the in-phase components.

16. (canceled)

17. (currently amended) A method according to Claim 15 wherein converting the ~~filtered~~ radar data samples into in-phase and quadrature components comprises applying a sample delay to phase shift an in-phase component by 90 degrees.

18. (previously presented) A method according to Claim 15 further comprising filtering the in-phase and quadrature components using four cascaded second order infinite impulse response filters.

19. (canceled)

20. (original) A method according to Claim 15 wherein sampling the radar data from each of the channels comprises sampling the components at a multiple of four of the frequency of the input signal.

21. (currently amended) A radar signal processing circuit comprising:

a radar gate correlator configured to sample radar data at a sampling rate;

a correlation band pass filter filtering the sampled radar data and configured to stretch the sampled radar data to a continuous wave (CW) signal;

a mixer configured to generate a quadrature component of the CW signal using a sample delay element and further configured to down sample an in-phase component and the quadrature component of the CW signal to a doppler frequency, said mixer comprising at least one all pass filter and configured to subtract the filtered and down sampled quadrature component from the filtered and down sampled in-phase component; and

a band pass filter centered on the doppler frequency.

22. (previously presented) A radar signal processing circuit according to Claim 21 wherein said all pass filter comprises four cascaded second order infinite impulse response filters.